

NAVISTAR, INC

DEFECT INFORMATION REPORT

TO: Manager
Engine Programs Group (6405J)
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

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DATE : December 2, 2015

The following Defect Information Report is submitted in accordance with 40 CFR §1068.501.

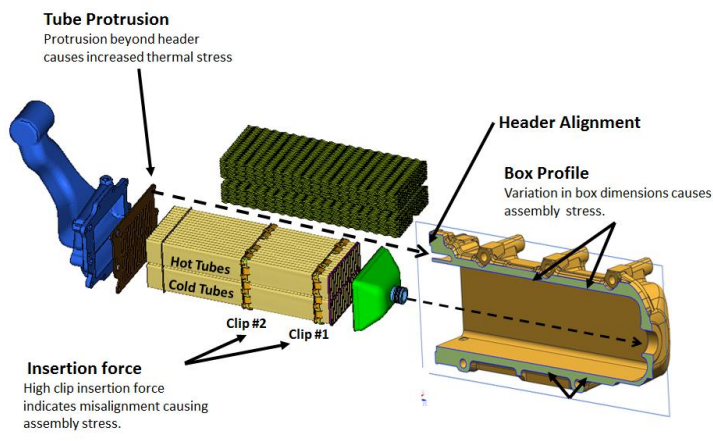
[40 CFR §1068.501(d)(1)] MANUFACTURER CONTACT INFORMATION

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[40 CFR §1068.501(d)(2)] DEFECT DESCRIPTION

This report addresses a defect concerning the EGR Cooler.
Manufacturing quality issues arising from a Jan 2013 change by the EGR Cooler supplier, in its location of production, has significantly raised the failure rate for this component.
The relocation of the supplier's assembly plant affected key design requirements of the internal and external components, such as the dimensional tolerances of the coolant tubes, headers and the mating external shell.

EGR Cooler Assembly



Variation of these key critical dimensions result in misalignment of the individual components, which produce excessive assembly stresses in the manufacturing process, and thermal stresses during engine operation, which in turn create premature EGR cooler failures. The excessive assembly and thermal stresses result in internal and external coolant leaks of the EGR cooler. A direct correlation has been established between the EGR cooler serial numbers from the relocated manufacturing facility, and the failed EGR Coolers returned from the field.

These EGR Cooler failures only affect Navistar's MaxxForce DT/9/10 (EGR) engines.

Thermal Cycle testing was used to establish the baseline and evaluate the effects of the key critical dimensions, by measuring cycle counts under heavy thermal loading.

Updated process improvements have been implemented, such as new core box tooling, to reduce key critical dimensional variation. In addition, in-process fixture improvements and additional in-process gauging have also been implemented.

These EGR Cooler manufacturing improvements have resulted in an improved EGR cooler design and a reduction in claims for this component.

[40 CFR §1068.501(d)(3)] DESCRIPTION OF VEHICLES/ENGINES AFFECTED

<u>Engine Family Name</u>	<u>Model Year</u>	<u>Engine Model</u>	<u>Engine Plant Ship Dates</u>
DNVXH05700GA	2013	MaxxForce 9/10	2013
DNVXH04660GA	2013	MaxxForce DT	2013
DNVXH04660GB	2013	MaxxForce DT	2013
ENVXH05700GA	2014	MaxxForce DT/9/10	2014

[40 CFR §1068.501(d)(4)] NUMBER OF ENGINES ESTIMATED TO HAVE DEFECT

<u>Engine Family Name</u>	<u>Number of Engines Affected</u>	<u>Total US Production</u>	<u>Percent of Family Affected</u>
DNVXH05700GA	555	3,620	15.3%
DNVXH04660GA	1,443	6,439	22.4%
DNVXH04660GB	2,088	9,398	22.2%
ENVXH05700GA	863	12,024	0.7%

[40 CFR §1068.501(d)(5)] EVALUATION OF EMISSIONS IMPACT

The Emission Impact of the EGR Cooler internal leaks is unknown. External leaks do not impact emissions.

Any coolant leaks will lower the vehicle expansion tank coolant level, notifying the operator of the issue, and thus preventing further engine damage.

[40 CFR §1068.501 (d)(6)] ANTICIPATED MANUFACTURER FOLLOW-UP

Navistar is currently replacing failed EGR Coolers with the Coolers produced by the improved manufacturing processes, on a fix as fail basis. Navistar does not anticipate any further follow-up.

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